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10/781,897	02/20/2004	Piero Patrone Bonissone	52493.000364	4221

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EXAMINER
WONG, ERIC TAK WAI

ART UNIT	PAPER NUMBER
3693	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/781,897	BONISSONE ET AL.
	Examiner	Art Unit	
	ERIC T. WONG	3693	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>14 February 2008</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-24</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-24</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All b) ☐ Some * c) ☐ None of:

       1. ☐ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____.

       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/22/2008</u>.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-24 are pending. The following is a non-final second Office action on the merits of claims 1-24.

Response to Arguments

2.   The objection to claim 13 for use of the relative term "sparsely" is withdrawn. Examiner notes that one of ordinary skill in the art would understand an area of an efficient frontier that is "sparsely populated" as one missing enough solutions to require additional analysis.

3.   The rejection of claim 15 under 35 U.S.C. 101 is withdrawn (see page 9 of remarks filed 2/14/2008)

4.   Applicant's arguments, see pages 9-15, filed 2/14/2008, with respect to the rejection(s) of claim(s) 1-24 under 35 U.S.C. 103(b) and 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art.

Claim Rejections - 35 USC § 102

        The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Examiner's note: Examiner has pointed out particular references contained in the prior art of record in the body of this action for the convenience of the Applicant. Although the specified citations are

representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply. Applicant, in preparing the response, should consider fully the **entire** reference as potentially teaching all or part of the claimed invention, as well as the content of the passage as taught by the prior art or disclosed by the Examiner.

5.   Claims 1-3, 5, 10, 13-17, 19, and 22-23 rejected under 35 U.S.C. 102(e) as being clearly

anticipated by Feldman (US Patent Application Pub. No. US 2003/0195831 A1).

6.   Regarding claims 1, 15, and 23,

        Feldman teaches performing a first multi-objective optimization process, based on

competing objectives, to generate an efficient frontier of possible solutions; observing the

generated efficient frontier; based on the observing, identifying an area of the efficient frontier in

which there is a gap; and effecting a gap filling process by which the efficient frontier is

supplemented in the area of the gap, the efficient frontier being used in investment decisioning

(see paragraph [0056]).

7.   Regarding claims 2 and 16,

        Feldman teaches presenting an efficient frontier to a human observer in the form of a

graphical representation (see figure 1).

8.   Regarding claim 3 and 17,

        Feldman teaches presenting an efficient frontier to a computer processor in the form of

data (see claim 1).

9.   Regarding claims 5 and 19,

Feldman teaches selecting at least one portfolio from the generated efficient frontier by selecting at least one portfolio in the area that was filled in by the gap filling process (see paragraph [0056] and claim 1, step g).

10.   Regarding claim 10,

Feldman teaches wherein the method further includes placing targets in the areas of the gaps (see paragraph [0056]).

11.   Regarding claim 13,

Feldman teaches wherein the gap is an area that is sparsely populated by possible solutions (see paragraph [0056]).

12.   Regarding claim 14,

Feldman teaches wherein in the gap filling process, the efficient frontier is substantially completed in the area by filling in the efficient frontier with additional solutions (see paragraph [0056]).

13.   Regarding claim 22,

Feldman teaches where in the gap filling process, the efficient frontier is smoothed out in the area by filling in the efficient frontier with additional solutions.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

14.   Claims 4, 6-9, 11-12, 18, 20-21, and 24 rejected under 35 U.S.C. 103(a) as being

unpatentable over Feldman in view of Eklund ("Multiobjective Visible Spectrum Optimization: A

Genetic Algorithm Approach").

15.   Regarding claims 4 and 18,

         Feldman does not teach using a Target Objectives Genetic Algorithm (TOGA) process to

perform the gap filling process.

         Eklund teaches using a TOGA process in multiobjective optimization (see abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention

to modify Feldman to include the gap filling process as a TOGA process, as taught by Eklund.

One skilled in the art would have been motivated to make the modification because TOGA is

computationally very fast as compared to Pareto based approaches (see abstract).

16.   Regarding claims 6 and 20,

         Feldman does not teach providing a set of target vectors; and generating a series of

chromosomes, evaluated on the basis of the target vectors, over multiple generations.

         Eklund teaches providing a set of target vectors; and generating a series of

chromosomes, evaluated on the basis of the target vectors, over multiple generations (see

section 5.1). Therefore, it would have been obvious to one of ordinary skill in the art at the time

of invention to modify the gap filling process of Feldman to include providing a set of target

vectors; and generating a series of chromosomes, evaluated on the basis of the target vectors,

over multiple generations, as taught by Eklund. One skilled in the art would have been

motivated to make the modification because TOGA is computationally very fast as compared to Pareto based approaches (see abstract).

17.   Regarding claims 7 and 21,

Feldman does not teach evaluating the fitness of each chromosome until a population with an acceptable fitness is determined so as to fill in the identified gap.

Eklund teaches evaluating the fitness of each chromosome until a population with an acceptable fitness is determined, (see section 5.1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the gap filling process of Feldman further to include evaluating the fitness of each chromosome until a population with an acceptable fitness is determined so as to fill in the identified gap, as taught by Eklund. One skilled in the art would have been motivated to make the modification because TOGA is computationally very fast as compared to Pareto based approaches (see abstract).

18.   Regarding claim 8,

Feldman teaches targeting an area of the efficient frontier in which there is a gap (see paragraph [0056]).

19.   Regarding claim 9,

Feldman does not teach wherein providing a set of target vectors and generating a series of chromosomes, based on the target vectors, over multiple generations is effected in a TOGA process.

Eklund teaches wherein providing a set of target vectors and generating a series of chromosomes, based on the target vectors, over multiple generations is effected in a TOGA

process (see section 5.1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the gap filling process of Feldman further with wherein providing a set of target vectors and generating a series of chromosomes, based on the target vectors, over multiple generations is effected in a TOGA process, as taught by Eklund. One skilled in the art would have been motivated to make the modification because TOGA is computationally very fast as compared to Pareto based approaches (see abstract).

20.   Regarding claim 11,

Feldman does not teach using a Target Objectives Genetic Algorithm (TOGA) process to effect the gap filling process by which the efficient frontier is filled.

Eklund teaches using a TOGA process in multiobjective optimization (see section 5.1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the gap filling process of Feldman as a TOGA process, as taught by Eklund. One skilled in the art would have been motivated to make the modification because TOGA is computationally very fast as compared to Pareto based approaches (see abstract).

21.   Regarding claim 12,

Feldman does not teach wherein once the targets are placed, generating feasible points around each target using a TOGA process.

Eklund teaches generating feasible points around each target using a TOGA process (see section 5.1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the gap filling process of Feldman further to include generating feasible points around each target using a TOGA process, as taught by Eklund. One skilled in

the art would have been motivated to make the modification because TOGA is computationally very fast as compared to Pareto based approaches (see abstract).

22.   Regarding claim 24,

Feldman teaches performing a first multi-objective optimization process, based on competing objectives, to generate an efficient frontier of possible solutions; Observing the generated efficient frontier; based on the observing, identifying an area of the efficient frontier in which there is a gap; and effecting a gap filling process by which the efficient frontier is supplemented in the area of the gap, the efficient frontier being used in investment decisioning (see [0056]).

Feldman does not teach wherein the effecting the gap filling process by which the efficient frontier is filled in the area of the gap includes: providing a set of target vectors; generating a series of chromosomes, evaluated on the basis of the target vectors, over multiple generations; and wherein the method further includes evaluating the fitness of each chromosome until a population with an acceptable fitness is determined so as to fill in the identified gap.

Eklund teaches using a TOGA process in multi-objective analysis. The process includes: providing a set of target vectors; generating a series of chromosomes, evaluated on the basis of the target vectors, over multiple generations; and evaluating the fitness of each chromosome until a population with an acceptable fitness is determined (see section 5.1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the gap filling process of Feldman to include wherein the effecting the gap filling process by which the efficient frontier is filled in the area of the gap includes: providing a set of target vectors; generating a series of chromosomes, evaluated on the basis of the target

vectors, over multiple generations; and wherein the method further includes evaluating the

fitness of each chromosome until a population with an acceptable fitness is determined so as to

fill in the identified gap, as taught by Eklund. One skilled in the art would have been motivated

to make the modification because TOGA is computationally very fast as compared to Pareto

based approaches (see abstract).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner

should be directed to ERIC T. WONG whose telephone number is 571-270-3405. The

examiner can normally be reached on Monday-Friday 9:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, James A. Kramer can be reached on 571-272-6783. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you

would like assistance from a USPTO Customer Service Representative or access to the

automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James A. Kramer/   ERIC T. WONG
Supervisory Patent Examiner, Art Unit 3693   Examiner
                                                       Art Unit 3693

March 24, 2008